

REMARKS

These remarks and the accompanying amendments are responsive to the Office Action mailed September 7, 2004 (hereinafter referred to as the "Office Action"), having a shortened statutory period for response that expired December 7, 2004. A petition and fee for a two-month extension of time accompany this response, thereby extending the period for response until February 7, 2005.

At the time of the last examination, Claims 1-27 were pending, of which only Claim 1 was independent. By this amendment, Claims 2 and 3 are cancelled, with Claims 10, 23, 24, 25 and 27 being amended to be in independent form. Accordingly, upon entry of this amendment, Claims 1 and 4 through 27 will be pending for further consideration. Of the independent claims, all except Claim 1 have been indicated to be allowable if rewritten in independent form (see section 8 of the Office Action). Accordingly, Claim 1 is the only independent claim still at issue. Arguments for the patentability of Claim 1 will be provided hereinafter after addressing several preliminary issues.

Section 1 of the Office Action acknowledges the applicants' claim for priority based on an application filed in Japan on June 14, 2000, but also asserts that the applicants' have not filed a certified copy of the Japanese patent application. The applicants respectfully disagree with this assertion. Attached in Appendix B is documentation showing that the certified copy was submitted to the United States Patent and Trademark Office on August 16, 2001. The United States Patent and Trademark Office's own internal PAIR database also reflects this filing. Accordingly, the applicants respectfully submit that the certified copy has already been submitted. Should there be any further corrective action required of the applicants to perfect the

claim for priority (such as, for example, the submission of a second certified copy), please contact the undersigned.

Section 2 of the Office Action identifies an error in the prior Figure 2 of the drawings in which Japanese text was inadvertently included. Accompanying this response above and in Exhibit A are amendments to the drawings in which the Japanese text is removed.

Section 4 of the Office Action rejects Claims 1-3, 6, 21 and 22 under 35 U.S.C. 103(a) as being unpatentable over United States patent number 6,751,247 issued to Zhengdi (hereinafter referred to as "Zhengdi"). The rejection is moot with respect to cancelled Claims 2 and 3, but remains with respect to Claims 1, 6, 21 and 22.

Claim 1 (as amended) recites "a synchronization establishing method" which "average[s] first correlation values within an averaging window" to generate "first averaged correlation values". Subsequently, the method of Claim 1 "poweriz[es] the first averaged correlation values". Next, as a second stage of averaging, the method of Claim 1 "average[es] the first powerized correlation values".

Although Zhengdi discloses averaging correlation values, Zhengdi does not describe, teach or suggest, an additional second stage of averaging after powerization as described in contrast to the language recited in Claim 1. Zhengdi is instead directed to a method and a radio system wherein a cross-correlation between spreading codes is reduced during a synchronizing phase. This allows for simplified synchronization and reduced interference. Because this objective is successfully achieved by simply averaging correlation values, one skilled in the art would not be motivated to modify the Zhengdi reference to further conduct power averaging (which power averaging is admitted prior art) based on the description of Zhengdi. Such power averaging would be a useless act in the context of Zhengdi.

Even if one of ordinary skill were to modify Zhengdi with the applicants' admitted prior art of power averaging, one skilled in the art might simply perform powerizing of the correlation values after the averaging, unlike what is claimed in Claim 1. Therefore, Zhengdi does not describe, teach, or suggest two-stage averaging as recited in Claim 1, even if combined with applicants' admitted prior art. Claims 6, 21 and 22 depend (directly or indirectly) from Claim 1, and are thus not unpatentable over Zhengdi and applicants' admitted prior art for at least the reasons provide with respect to Claim 1. Therefore, the applicants respectfully request reconsideration of Claims 1, 6, 21 and 22, and request withdrawal of the 35 U.S.C. 103(a) rejection of the same.

The two stage averaging recited in Claim 1 can increase the detection probability in correlation detection, and can reduce the time required for the detection. In addition, transmission power of a synchronization channel of a base station can be reduced with maintaining the detection probability at a fixed value.

Section 5 of the Office Action rejects claims 4, 7 and 9 under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Zhengdi, and further in view of United States patent number 6,785,350 issued to Poulbere et al. (hereinafter referred to as "Poulbere"). The applicants do not concede that the combination is appropriate. However, Poulbere does not teach two stage averaging. Thus, even the combination of the admitted prior art, Zhengdi and Poulbere does not teach or suggest all of the features of Claim 1 from which Claims 4, 7 and 9 depend. Therefore, the applicants respectfully request reconsideration of Claims 4, 7 and 9 and withdrawal of the 35 U.S.C. 103(a) rejection of Claims 4, 7, and 9.

Furthermore, according to Poulbere, a mixer generates a mixed signal on a line which is applied to a moving average length L , which averages the mixed signal over the length L .

However, neither Zhengdi nor Poulbere disclose adjusting averaging window ranges at the first stage (N) and the second stage (M) of the averaging such that two ranges are equal as in the invention recited in Claim 4. Therefore, Claim 4 is not unpatentable over even the combination of applicants admitted prior art, Zhengdi, and Poulbere, for at least this additional reason. The unique recited features of Claim 4 reduce the buffer size needed for the in-phase averaging of the mobile station (see applicants' specification, page 16, lines 14 to 21).

Section 6 of the Office Action rejects claim 5 under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Zhengdi, and further in view of United States patent number 6,304,619 issued to Citta et al. (hereinafter referred to as "Citta"). The applicants do not concede that the combination is appropriate. However, Citta does not teach two stage averaging. Thus, even the combination of the admitted prior art, Zhengdi and Citta does not teach or suggest all of the features of Claim 1 from which Claim 5 depends. Therefore, the applicants respectfully request reconsideration of Claim 5 and withdrawal of the 35 U.S.C. 103(a) rejection of Claim 5.

Section 7 of the Office Action rejects claim 7 under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Zhengdi and Poulbere, and further in view of Citta. The applicants do not concede that the combination is appropriate. However, none of these references teach two stage averaging. Thus, even the combination of the admitted prior art, Zhengdi, Poulbere and Citta does not teach or suggest all of the features of Claim 1 from which Claim 7 depends. Therefore, the applicants respectfully request reconsideration of Claim 7 and withdrawal of the 35 U.S.C. 103(a) rejection of Claim 7.

Furthermore, according to Poulbere, a phase calculator calculates phases associated with the correlation values and a peak comparator performs comparison of the calculated phase value

with a phase threshold PH. A result of this comparison is used for establishing synchronization (if the phase is within the threshold over N frames, it can be judged as successful establishment of synchronization). In contrast, as recited in Claim 7, a phase of a correlation value is corrected to allow summing up and averaging a plurality of in-phase correlation values in order to improve SIN ratio of correlation values to make detection accuracy higher. Therefore, Claim 7 is not unpatentable over the combination for at least this additional reason as well.

Therefore, all of the pending claims are patentable, and favorable action is respectfully requested. In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, the Examiner is requested to contact the undersigned attorney.

Dated this 4th day of February, 2005.

Respectfully submitted,



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AJL:ds
DS0000003053V001

Date: August 14, 2001

Docket No. 3815/123 [RFH/L]

Applicant(s): TANNO, et al.

Serial No.: 09/880,453

Filed: June 13, 2001

Title: SYNCHRONIZATION ESTABLISHING METHOD OF
MOBILE STATION IN MOBILE COMMUNICATION SYSTEM

Assistant Commissioner for Patents, Washington, D.C. 20231

To the individual receiving this correspondence, please check the
contents enclosed herewith and verify that the following items were enclosed
By date stamping and placing this postal card in the outgoing mail. Thank you.

- Transmittal of priority document;
- Priority document appl'n no. 2000-178747 (filed 6/14/2000, Japan).

Applicant(s): TANNO, et al.

Serial No.: 09/880,453

Filed: June 13, 2001

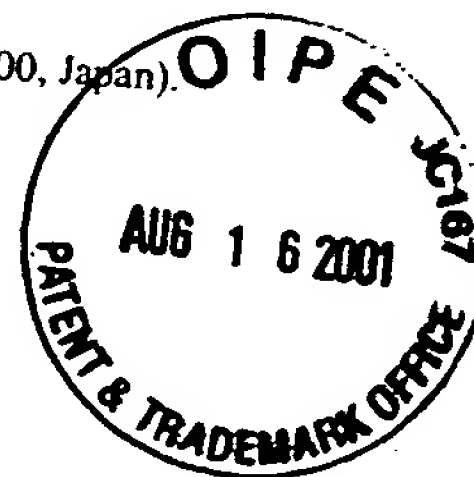
Title: SYNCHRONIZATION ESTABLISHING METHOD OF
MOBILE STATION IN MOBILE COMMUNICATION SYSTEM

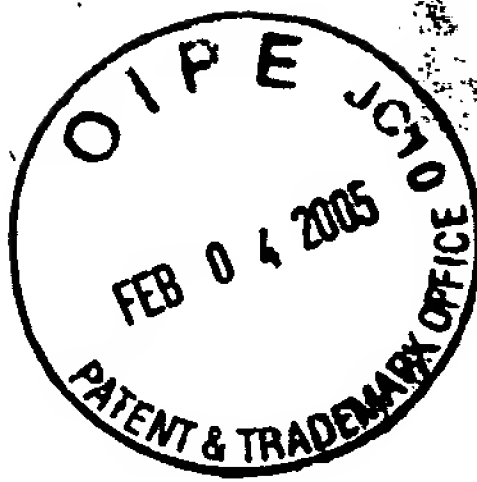
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Date of Mailing: 8/14/2001
Docket #: 3815/123 RFH/L





Atty. Docket No. 3815/123

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : TANNO et al
Appln. No. : 09/880,453 Examiner :
Filed : June 13, 2001 Group Art Unit:
Title : SYNCHRONIZATION ESTABLISHING METHOD OF
MOBILE STATION IN MOBILE COMMUNICATION SYSTEM

TRANSMITTAL OF PRIORITY DOCUMENT

Pursuant to 35 U.S.C. § 119 and 37 CFR § 1.55

Pursuant to 35 U.S.C. § 119 and 37 CFR § 1.55, Applicant hereby submits a certified copy of priority document Japanese Patent Application No. 2000-178747, filed June 14, 2000 in the Japan Patent Office. A translation of this document was filed herein with the original application papers on June 13, 2001.

Priority of this application has been claimed in papers filed herein of June 13, 2001. In the event that the Office has not recognized previous filings as constituting a claim to the priority of the attached application, Applicant hereby enters such claim.

Respectfully submitted,

Date: 8-14-01

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I hereby certify that this paper is being deposited this date
with the U.S. Postal Service as First Class Mail addressed to:
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8-14-01
Date

日 本 国 特 許 庁
JAPAN PATENT OFFICE

別紙添付の書類に記載されている事項は下記の出願書類に記載されている事項と同一であることを証明する。

This is to certify that the annexed is a true copy of the following application as filed with this Office

出 願 年 月 日

Date of Application:

2000年 6月14日

出 願 番 号

Application Number:

特願2000-178747

出 願 人

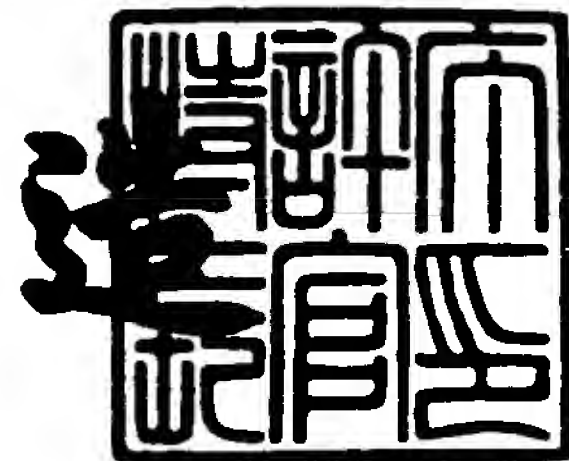
Applicant(s):

株式会社エヌ・ティ・ティ・ドコモ

2001年 6月11日

特 許 庁 長 官
Commissioner,
Japan Patent Office

及 川 耕 達



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【整理番号】 DCMH120012

【提出日】 平成12年 6月14日

【あて先】 特許庁長官 殿

【国際特許分類】 H04B 7/005
H04B 7/26

【発明の名称】 移動通信システムにおける移動局の同期確立方法

【請求項の数】 27

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AMENDMENTS TO THE DRAWINGS

The attached sheet of drawings included as Appendix A includes changes to Figure 2 in Sheet 2/16. This sheet 2/16 replaces the original sheet including the prior Fig. 2.

Attachment in Appendix A:

Replacement Sheet

Annotated Sheet Showing Changes

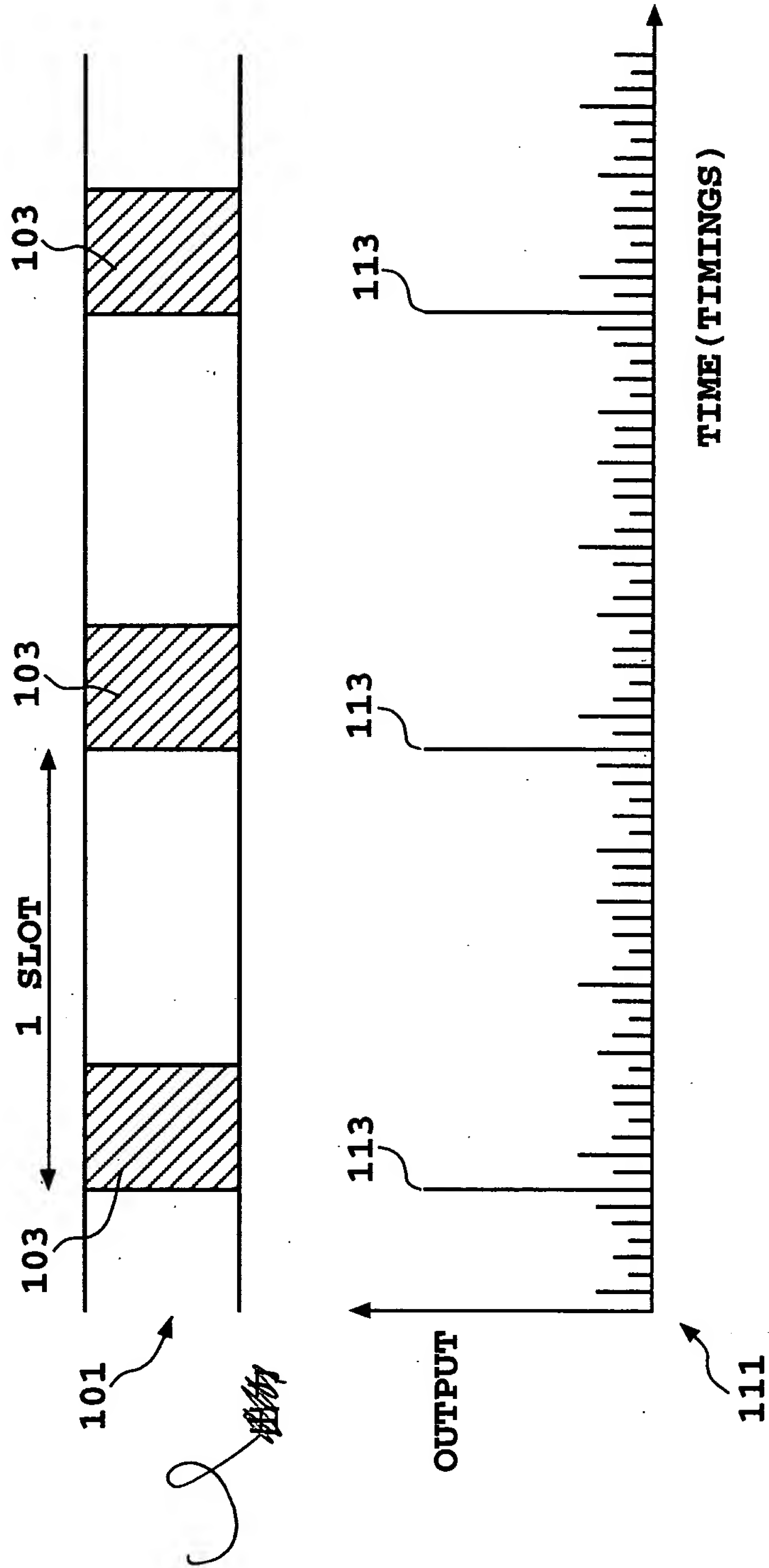


FIG. 2 (PRIOR ART)